Introduction to the Plan

The University of Texas at Arlington (UTA) stands at a pivotal moment in its institutional history. As a leading academic institution in the Dallas-Fort Worth (DFW) metroplex, UTA's growth in both size and prominence brings new opportunities and responsibilities in resource management and campus operations. Recent extreme weather events across Texas have highlighted the importance of maintaining reliable campus operations, while rising energy costs and aging infrastructure systems present increasing challenges to the university's operational efficiency.

Why this Plan Matters

UTA's commitment to responsible resource management dates back to the early 1990s, when the institution first began establishing programs to ensure sustainable campus operations. Today's challenges, however, require an evolved and more holistic approach that addresses both immediate needs and long-term resilience.

The DFW area faces unique environmental challenges that directly impact campus operations. Summer temperatures regularly exceed 95°F for extended periods, creating significant demands on cooling systems and affecting outdoor campus spaces. Winter storms, like the event in February 2021 that disrupted campus operations, highlight vulnerabilities in existing infrastructure systems. Meanwhile, rapid regional growth continues to put pressure on energy resources and municipal systems that the campus relies upon.

These challenges intersect with UTA's institutional priorities in several key ways:

- **Academic Excellence and Research:** Modern, reliable infrastructure is essential for supporting UTA's research mission and maintaining comfortable learning environments. Laboratory spaces, in particular, require precise environmental controls and uninterrupted power supply.
- **Operational Efficiency:** Rising energy costs and aging systems impact the university's operational budget. Strategic improvements in building performance and energy infrastructure can help control these costs while improving service reliability.
- **Campus Experience:** The quality of UTA's physical environment directly affects student success, faculty retention, and community engagement. As extreme weather events become more frequent, maintaining comfortable indoor and outdoor spaces becomes increasingly challenging.
- **Regional Leadership:** As one of the largest institutions in North Texas, UTA's approach to campus operations influences regional practices and sets standards for institutional excellence. The University's choices in energy systems and infrastructure improvements ripple beyond campus boundaries.

Through careful analysis of campus conditions, energy use patterns, and infrastructure needs, the Energy Efficiency Plan aims to address identified challenges while advancing UTA's broader institutional mission, recognizing that true campus resilience emerges from the combined strength of physical infrastructure, operational practices, and community engagement. This plan charts a course toward a more resilient and sustainable campus through 2040, integrating infrastructure improvements, energy system modernization, and operational practices into a cohesive framework for action.

ESTABLISHING OUR ROOTS

A timeline of sustainability at UTA

1990

1994 Campus-wide recycling program receives presidential approval

2000

2004-05 **Tarrant County Corporate Recycling Council** Environmental Vision Awards for recycling

2006 **Hispanic Outlook in Higher Education Magazine** Top 100 four-year colleges for Hispanics ranking granted

2007 University Sustainability Committee forms
AASHE membership begins
Composting program receives multiple awards
American Association of State Colleges & Universities Recognized as trailblazer in "closing the gap" between Hispanic and non-Hispanic white students

2008 Green roof on campus, receives multiple awards
Preliminary carbon footprint analysis completed
National Wildlife Federation Exemplary rating in Sustainability

2009 Maverick Office Green Team launches

2010 EPA Food Recovery Challenge participation begins

2011
AASHE STARS Bronze achieved
Organic community garden created
Engineering Research Building achieves LEED Gold
PV panels at College Park parking garage in operation

2012
The Green at College Park receives multiple awards
College Park Centers achieves LEED Gold
The Center for Metropolitan Density established
Public transit 2-year pilot project announced
EPA Food Recovery Challenge Certificate of Achievement

2013
North Texas Commission Working for Clean Air Award: Best University
AASHE STARS Silver rating achieved

2014
EPA First of three Leadership Awards for Food Recovery Challenge granted (2014, 2018, 2021)

2015
Launched Institute for Sustainability & Global Impact
Partnered with Zipcar for on-campus car-sharing
First GRI Report launched

2016
AASHE STARS Silver rating achieved
CAPPA is established

2017
First Bike Share Program launched
Sierra Magazine Named "Cool School"for sustainability efforts on campus

2018
EPA Sun Belt Conference largest green power user
NACUBO Excellence in Sustainability Award

2019
STARS NTx + NTCRA Outstanding Composting Program
UNU-IAS Acknowledged Flagship Project
Strategic Plan is updated

2010

2020
UNU Honorable Mention for work on SDG6 for the Upper Trinity River Water Quality Report Card
Strategic Plan is updated
President announces eight DEI commitments

2021
THE Impact Ranks 1st
UNU-IAS Sustainable Cities Challenge ESD Contributions
Texas Tier 1 Designation
#1 in Texas awarding degrees to African-American students

2022
THE Impact Ranks 8th
AASHE STARS Silver rating achieved
US News & World Report Ranks third in Ethnic Diversity
NACUBO Excellence in Sustainability Award

2023
D CEO Magazine Ranks 14th among American higher ed. Non-profit & Corporate Citizenship Award Finalist

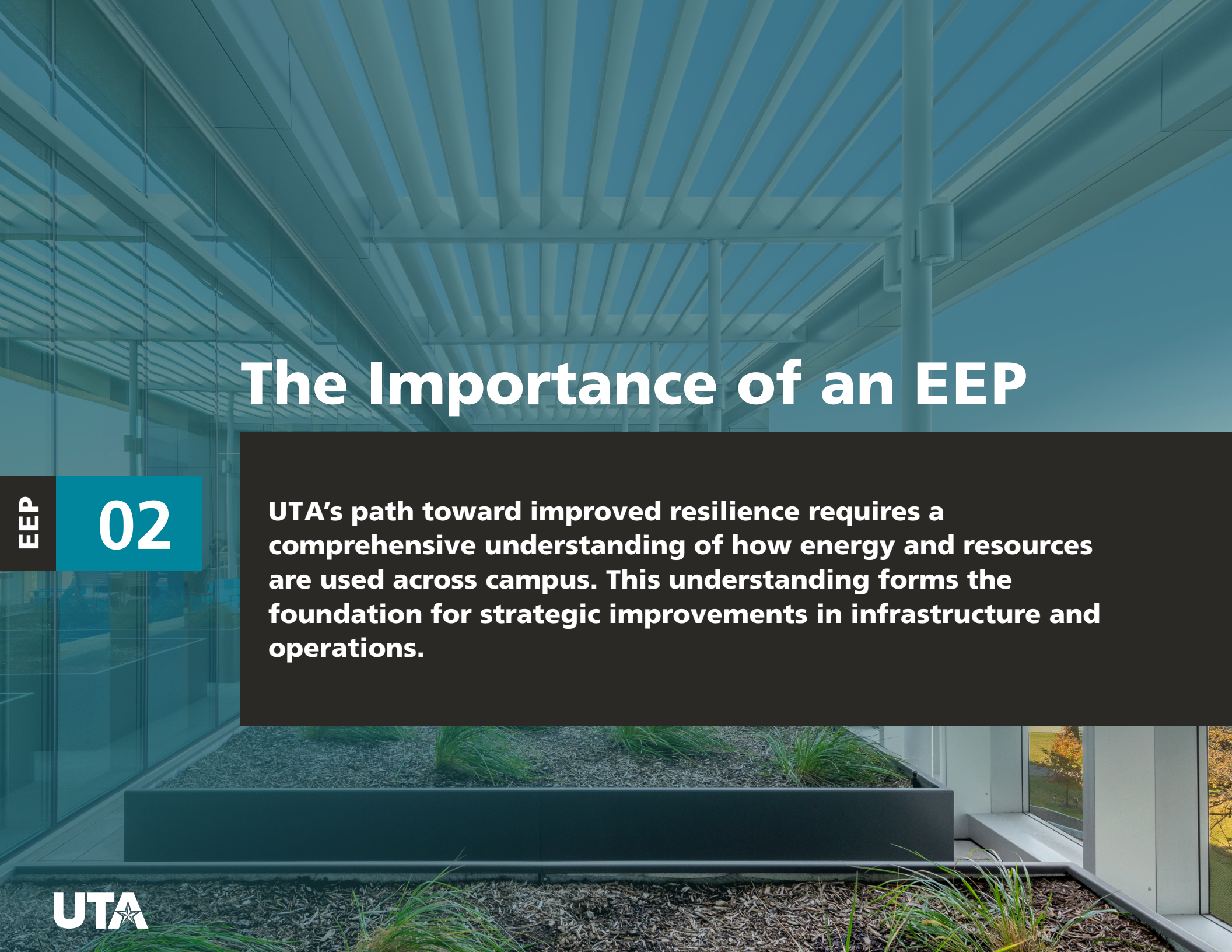
2024
IDC Future Enterprise Awards North American Special Award for Sustainability won for Sustainability Dashboards
State of Texas Alliance for Recycling Environmental Leadership Award for Innovative Organics

2020

EEP 02

The Importance of an EEP

UTA's path toward improved resilience requires a comprehensive understanding of how energy and resources are used across campus. This understanding forms the foundation for strategic improvements in infrastructure and operations.



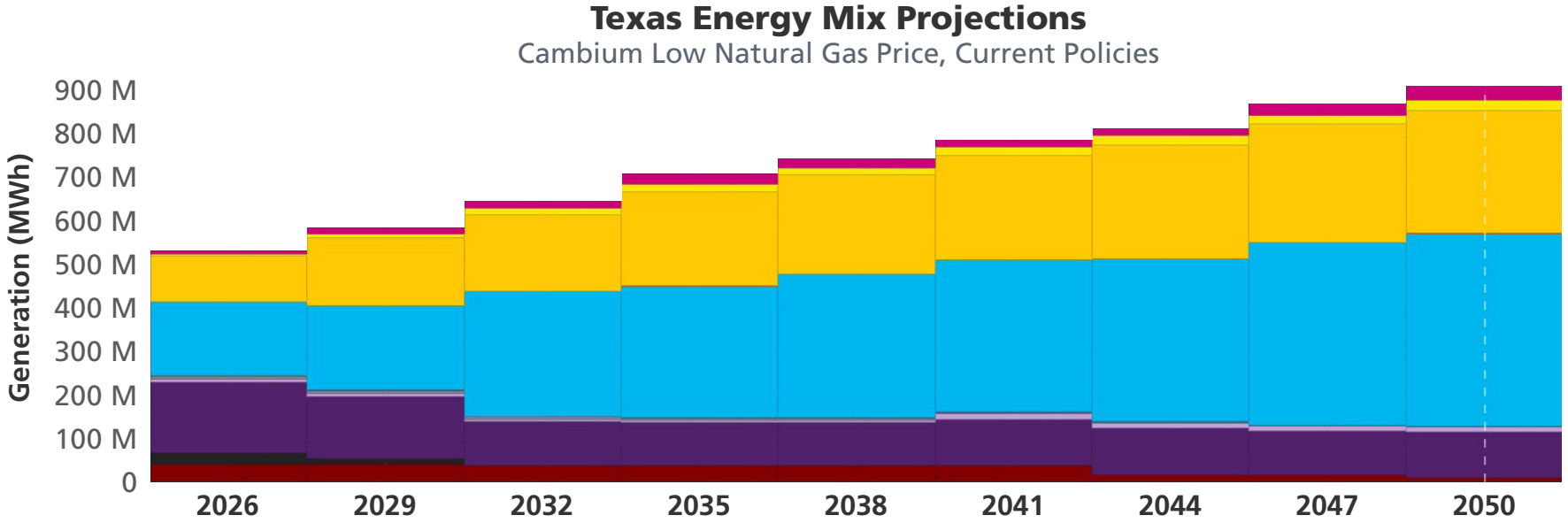
Understanding Energy Use

Texas Grid Evolution and Campus Infrastructure Challenges

The Texas electric grid, operated by ERCOT, is undergoing a fundamental transformation in its generation mix. While projections show wind and solar becoming dominant resources by 2035, UTA faces several immediate challenges in managing its infrastructure modernization.

Recent events have highlighted the grid's vulnerability, most notably during Winter Storm Uri in February 2021, when millions of Texans lost power for days during extreme cold weather. The grid has also faced strain during intense summer heat waves, requiring emergency conservation measures to prevent blackouts. For an R1 research institution like UTA, these reliability issues pose significant risks to critical research infrastructure, laboratory operations, and sensitive equipment.

These challenges present an opportunity for UTA to develop innovative electrical management approaches, including microgrid technologies, advanced energy storage systems, and smart demand response programs. Such solutions could not only enhance the university's energy resilience but also serve as a model for other large institutions operating within ERCOT's jurisdiction.



The campus faces several interconnected infrastructure considerations. The existing electrical service capacity requires feeder upgrades to accommodate new development and future electrification needs. Additionally, the regional grid's current energy mix means that purchased electricity has a higher carbon intensity compared to on-site natural gas usage, which adds complexity to electrification planning decisions. Furthermore, the limited building-level metering infrastructure affects the University's ability to precisely evaluate and implement efficiency measures, which could impact equipment sizing and investment decisions.

These challenges, combined with the grid's on-going evolution, emphasize the need for a carefully phased approach to campus energy improvements. While the increasing share of renewables in ERCOT's generation mix will eventually support UTA's sustainability goals, immediate focus must be placed on upgrading basic infrastructure and improving energy monitoring capabilities.

Energy Consumption Patterns

Campus energy use follows distinct seasonal patterns that align with both academic calendars and regional climate conditions. The university's energy profile shows peak demands during extreme temperature periods, with significant variation between academic and low-activity periods.

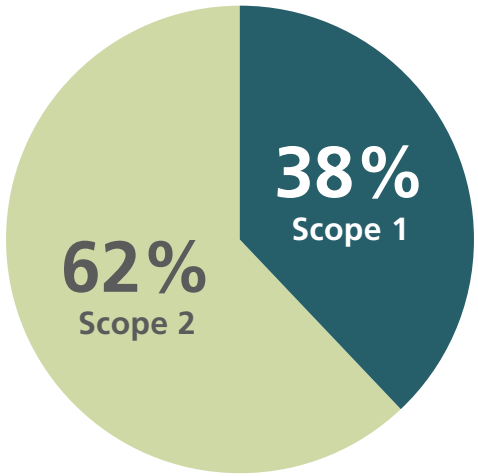
While heating requirements show a gradual decline over recent years, cooling demands continue to rise. This shift creates new challenges for campus infrastructure originally designed for different conditions. Longer cooling seasons mean extended periods of peak demand on district systems, while variable winter conditions still require maintaining flexible heating capabilities.

Resource Consumption Intensity

Energy Use

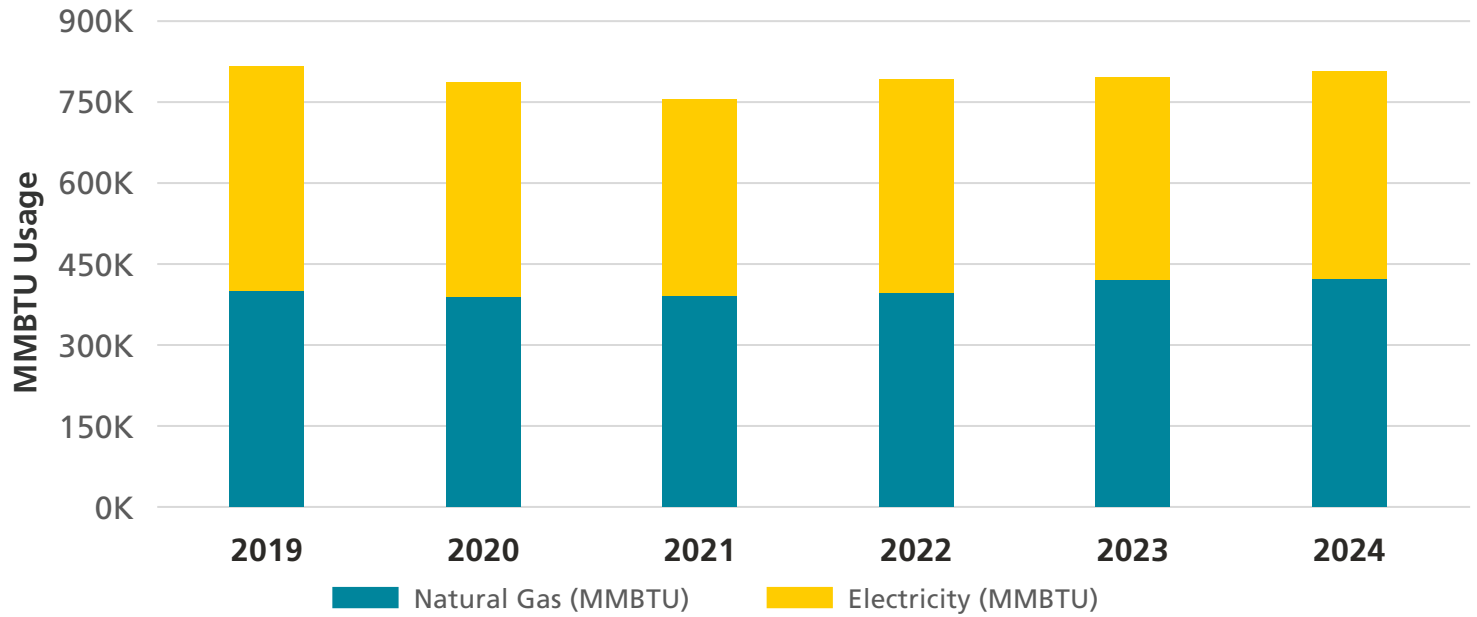
Based on reporting from 2023, UTA consumes over 110 million kilowatt-hours of electricity every year, and 410 million cubic feet of natural gas in order to operate campus. In terms of energy demand, there is a 50/50 split between electricity and on-site fossil fuel consumption. Given the Texas grid's reliance on coal, however, 62% of UTA's emissions come from purchasing power from the grid, with the remaining 38% sourced from burning fossil fuels on-site. Moving away from a reliance on coal and natural gas is essential to a low-carbon future, and recommendations in later sections of this report delve into the details of how to handle a phased transition away from fossil fuel sources to renewably sourced electric energy.

Currently, there is minimal development of renewables on campus. Solar panels are mostly used for teaching and demonstration.



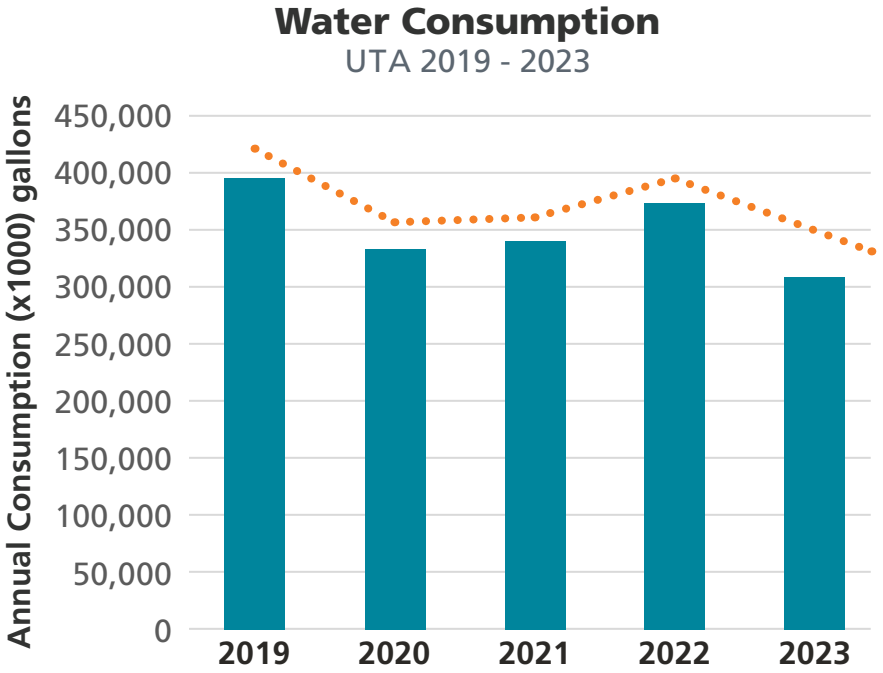
Scope 1 & 2 Emissions
UTA FY 2024

Historic Electric Consumption
Electricity (plus Steam and Chilled Water) and Natural Gas (On-Campus Stationary Sources)



Water Use

Water consumption across the campus stems from demand for potable water consumption, steam and chilled water distribution for heating and cooling, and landscape irrigation. Water usage per square foot has drastically reduced from 66 gal/sf in 2009 to 45 gal/sf in 2023, a 32% reduction. Total overall water consumption has increased as the campus has grown but UTA has incorporated water-wise habitat designs for all new campus development to increase water efficiency. Further reductions in water consumption are in progress, the University is taking steps to reduce its water demand for irrigation by planting local and drought-resistant plants. The Special Events Center and Campus Green Park features native and stress-tolerant plants that consume approximately 70% less water than a typical landscape for the area.[1] At the Central Plant, water (steam for heating) is used to deliver heating and cooling via district distribution loops. Atypical to other energy plans, this plan has integrated water considerations, such as reducing consumption in energy systems and exploring water-efficient technologies for thermal energy demand to develop long-term strategies.



	2019	2020	2021	2022	2023
Annual	394,971	332,627	338,879	372,143	308,065
Average Monthly	32,914	27,719	28,240	31,012	25,672

1 Water - Administration and Campus Operations | UT Arlington

EEP 03

Approach

Developing the Plan: Process, Methods, and Engagement

The development of UTA's Energy Efficiency Plan followed a structured five-phase process designed to ensure both technical rigor and meaningful community input. The project began with extensive preparation and data collection, gathering baseline information about campus infrastructure, energy consumption, and operational practices. The planning team utilized specialized energy modeling software to analyze campus systems and evaluate potential improvements, while also conducting structured interviews with key stakeholders to understand operational challenges and opportunities.

Community input shaped the plan's development through two interactive workshops that engaged more than 215 participants from across the university. Students, faculty, staff, and external stakeholders contributed diverse perspectives on campus sustainability and helped identify priority areas for action. These sessions revealed strong alignment between institutional capabilities and community aspirations, particularly regarding UTA's potential to serve as a regional leader in sustainability innovation. The engagement process included detailed surveys to gather quantitative feedback on proposed strategies and priorities.

An Engaging Discussion

While the EEP is specific to UT Arlington, this plan addresses challenges that extend beyond the UTA campus. The University must be a leader in addressing the challenges that come with changing weather and energy demands through its educational programs, research, operations, finance, and community engagement initiatives. As such, holding these workshops helped to identify opportunities, barriers, and major areas of transformation that this plan must deliver.

PHASE 1
Preparation & Kickoff

- Project Planning
- Engagement Planning
- Communication Plan

PHASE 2
Data Collection & Analysis

- Benchmarking & Research
- Engagement
- Data Collection
- Energy & Emissions Baseline

PHASE 3
Goals & Strategies Development

- Focus Group Workshops
- Preliminary Goals & Strategies
- Follow-up Surveys

PHASE 4
Plan & Tools Development

- Metrics and Supporting Policies
- Financing the Plan
- Implementation & Tracking

PHASE 5
Presentation & Approval

- University Leadership Presentation
- Approval of the Energy Efficiency Plan

During the engagement workshops, noteworthy themes were expressed by students, staff, and stakeholders. These insights have been instrumental in shaping the Energy Efficiency Plan, ensuring that it aligns with the specific needs and objectives of the UTA community.

Groups convened across campus to discuss the implementation of energy initiatives, research in technology, large-scale changes in policies related to sustainability, behavioral changes, and funding for these endeavors.

In alignment with the Strategic Plan and Master Plan, the EEP complements the University's ability to thrive in the changing landscape of higher education as a leader, innovator and problem-solver tackling one of society's most pressing challenges.

The UTA community left us with a clear understanding that this plan must take action in the following:

CELEBRATE SUSTAINABILITY!

Recognizing the hard work and achievements of UTA to date

REACTIVE TO PROACTIVE: A HEALTHY CAMPUS IS A SUSTAINABLE CAMPUS

Preventative measures are the most important for protecting the campus overall

DEEPEN THE COMMUNICATIONS FABRIC OF UTA'S SUSTAINABILITY STORIES

Enhance visibility through signage, art, and student activities

EXPAND ON WASTE LEADERSHIP TO TACKLE THE FOOD-WATER-ENERGY NEXUS

Create programming that integrates UTA dining services, waste management practices, and state of the art energy solutions

CREATE A PHYSICAL GROUNDING POINT FOR INTERDISCIPLINARY WORK

Collaboration needs an intentional home to bring together researchers and students across different department

GET AGGRESSIVE ON THE INFRASTRUCTURE MODERNIZATION

Prioritize the strategies (and financing!) needed to deliver action on energy security

INNOVATE THROUGH RESILIENCE!

The changing climate needs new technologies and ideas in order to protect the plan immediately. Utilize the brainpower at UTA to turn vulnerabilities into opportunities

STRENGTHEN THE REGIONAL IDENTITY OF SUSTAINABILITY

Did you know DFW is the first net-zero airport in the US? Or that UTA will be collaborating on the World Cup's sustainability actions in Dallas? UTA and its partner need to create a clear brand identity that puts sustainability front and center

Survey

Stakeholders were invited to participate in shaping the future of sustainability at UTA through an online survey. Survey respondents had the opportunity to provide feedback on current initiatives, identify areas for improvement, and contribute ideas for innovative solutions. These responses helped provide an understanding of a feasible timeline for implementation and provided additional feedback to be incorporated into the plan.

Summary of Qualitative Findings

This engagement point verified the priorities and actions of the University and a broad variety of its stakeholders. Engagement point one asked the question **what are the major goals that this plan needs to achieve**. The survey asked the question **how does UTA go about achieving these goals**. The last engagement series of the data assessment asked **which of these actions and strategies are of priority and what is the appropriate timeline for achievement**.

Over the summer, the EEP team focused on aggregating the recommended strategies, creating metrics for tracking progress, and ultimately confirming the robust governance structure that allows for clear achievement and accountability on each of the respective goals.

Takeaways from the Engagement Process

Following the analysis and engagement phases, the team synthesized findings to develop comprehensive strategies for campus transformation. This work included detailed technical assessments of building performance, infrastructure systems, and operational practices, along with careful consideration of implementation requirements and institutional capabilities. Through these focused stakeholder discussions and additional community feedback, the team refined recommendations to ensure they provided practical, actionable solutions while maintaining alignment with UTA's broader institutional goals. This collaborative approach resulted in a flexible framework that can guide UTA's infrastructure modernization while adapting to changing conditions and opportunities.

An Ecosystem for Change

The UTA campus represents a complex ecosystem where academic excellence, research innovation, and community engagement converge. As extreme weather events become more frequent and demand on university spaces intensifies, the built environment must move beyond basic functionality, evolving to meet higher performance standards while protecting and improving watershed ecosystems connected to Johnson Creek.

Through both mitigation and adaptation strategies, this plan envisions a campus environment that does more than simply withstand challenges - it adapts and thrives in the face of change. By improving infrastructure, operations, and community engagement, UTA will create spaces that support excellence in teaching, research, and student life while demonstrating leadership in campus resilience.

Source: UTA Athletics | Jason MacBain

THE BIG PICTURE

WHAT

Identify strategies & changes needed in order to reach our goals

WHEN

2040

WHY

To improve environmental, social, and economic resources for the next generation of UTA students

HOW

Through collaboration, communication, & innovation

Key Themes

These eight themes emerged from community engagement and stakeholder conversations are what comprise the EEP.

SOCIAL IMPACT

Highlight UTA as an exemplar university for research in sustainability

OPERATIONS & FINANCE

Utilize environmental impact in operational and financial decision-making

HIGH-PERFORMANCE BUILDINGS

Retrofit and design high-performance buildings across campus

ENERGY INFRASTRUCTURE

Shift to low-carbon energy infrastructure

FOOD & WASTE

Reduce food and waste by moving towards circular economy

ECONOMIC DEVELOPMENT & INNOVATION

Position the DFW region as a leader in sustainability and innovation

CULTURE & COMMUNICATION

Enhance the role of sustainability in culture & communications through story-telling and collaboration

MOBILITY

Shift to sustainable mobility patterns